



# Memorandum

**To:** Honorable Mayor and City Council  
**Through:** Jan Dolan, City Manager and Roger Klingler, Asst. City Manager  
**From:** Brent Stockwell and Natalie Lewis, Assts. to the Mayor and Council  
**Date:** October 29, 2004  
**Re:** Power Line Undergrounding

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Attached is an overview of key issues and costs involved in converting overhead lines to underground. The City Manager has asked us to forward this information for your review.

Please advise the City Manager's Office at (480) 312-2422 if there is more information you need, or if you would like a more detailed staff briefing on this issue.

## **What costs are associated with undergrounding power lines?**

Bottom Line: Undergrounding power lines is expensive. The rule of thumb of \$1 million per mile is no longer accurate – and only applied to 69kV lines, such as those currently being undergrounded along Scottsdale Road. Estimates provided by SRP and APS for undergrounding transmission lines generally range from \$1.9 – \$6.5 million per linear mile for transmission lines (69kv and 230kV). These lines are generally found along arterial streets and canal corridors within Scottsdale.

In addition, city staff have estimated \$3.9 to \$9.1 million per square mile for distribution lines (12kV) undergrounding, typically found within established neighborhoods. The 12kV distribution line estimate does not include additional customer conversion costs (i.e. undergrounding electrical from main line to private residence) of \$500-\$1,000 per property.

A 1997 city estimate (Attachment B) for undergrounding all 12 and 69kV lines in the city totaled to over \$309 million when adjusted for inflation. This estimate did not include the three 230kV lines along the Crosscut Canal or the seven Western Area Power Authority (WAPA)/APS/SRP 230kV transmission lines that form, in part, the boundary for the Environmentally Sensitive Lands Ordinance (ESLO) area in the northern part of the city. In addition, 69kV lines within these 230kV power line corridors were also not included. If the city were to proceed with developing a city wide plan for undergrounding power lines, a more detailed inventory of all above ground power lines would need to be undertaken.

Among the conditions accounting for cost variances are size of lines, differences in terrain, existing right-of-ways, number of service providers, population density, type of utility service, conflicting underground uses, excavation costs, engineering costs, and conflicts with existing infrastructure.

Undergrounding costs can be reduced if work is done in conjunction with other streetscape improvements such as the replacement of pavement or sidewalk. Such complementary work could be one of several criteria used in prioritizing projects. The City has done this type of work in the downtown area as part of the canal project, and most recently in cooperation with the Town of Paradise Valley as part of the Scottsdale Road widening project.

**What are the benefits of undergrounding power lines?**

The following are some of the often-stated benefits for the undergrounding of power lines. The general consensus is that placing existing overhead lines underground is difficult to justify based on economic cost-benefit analysis – due to the high cost of undergrounding. Nationally, most undergrounding programs are justified instead by aesthetic and public-policy considerations.

- Beautification. The primary reason in this part of country to bury overhead wires is aesthetic. For a one-time investment, undergrounding can produce long-term aesthetic returns. Undergrounding can improve views and reduce visual clutter. However, where street lighting is co-located on power poles, new free-standing street lights would need to be added.
- Equity. Undergrounding can create equity between newer developments that were built as undergrounded, and older areas of the city. In addition, undergrounding may contribute to increased property values in affected areas.
- Reliability. Placing wires underground offers greater protection from trees, wind, and other damage during storms. However, there is little evidence that underground lines are safer or more reliable than overhead ones. Problems in an underground system, while less frequent, can be more difficult to locate and may cause longer interruptions of service. For example, there can be moisture infiltration causing rust. In addition, power outages may still occur when feeder cables or substations are damaged.
- Health – Electro-magnetic fields (EMF) radiation may pose health risks. Studies are inconclusive. Undergrounding may lessen exposure by placing wires below sidewalks, but it also may increase exposure by lessening the distance between the wire and the resident.

**What criteria could be used to prioritize projects?**

Because of the scope of a project to underground power lines, both in the amount of miles of lines to be undergrounding, and the cost of undergrounding these lines – it would be beneficial to establish criteria for prioritization. One criterion for undergrounding lines would be to consider when there is already an established project to widen a road, or trench for other utility lines. In addition, the state of California developed the following criteria for undergrounding projects to qualify for full funding through utility rate proceeds. Projects must produce a benefit to the general public, not just customers in the affected area, by satisfying one or more of these criteria:

- The location has an unusually heavy concentration of overhead facilities.
- The location is heavily traveled.
- The location qualifies as an arterial or major collector road in a local government's general plan.

- The overhead equipment must be located within or pass through a civic, recreational or scenic area.

**What financing options exist for undergrounding projects?**

Traditionally, distribution line and some transmission line undergrounding has occurred through improvement districts. Residents often have difficulty meeting statutory petition requirements of 60% property owner approval. The amount residents are required to contribute to a successful improvement district depends on the number of property owners, the total amount of the project and the length of time the project will be financed. Two 12kV undergrounding improvement district projects being considered in Phoenix have been estimated that they would cost from \$10,000 to over \$25,000 per property owner. In addition, Phoenix has considered an improvement district to underground 15.5 miles of new power lines at a cost of \$21 million in the area near the Sonoran Preserve (Interstate 17, Carefree Highway, Cave Creek Road and Dixileta Drive).

Financing alternatives also include the initiation of a capital improvement project and associated budget to inventory, plan and implement an undergrounding plan. The amount of funding could be programmed by the City Council as part of the 5-year Capital Improvement Program.

City of Scottsdale Financial Policy #23 provides for some support of local improvement district efforts. These programs are unfunded in the current Capital Improvement Plan. This policy states:

*Pay-as-you-go contributions up to 10%, or \$500,000, whichever is less, may be authorized by City Council towards any single utility undergrounding improvement district. Any unused annual budget authorization may carry forward to a maximum \$2 million appropriation for utility undergrounding capital projects that benefit the community as a whole.*

In addition, the City Council could consider studying the feasibility of adding a surcharge to electrical utility bills for both APS and SRP customers for the expressed purpose of undergrounding existing lines. Such a surcharge would require approval from SRP, APS, as well as voter approval through a general ballot item to be initiated.

Attachments and additional information:

City of Scottsdale. "Electrical Services Reference Map." October 29, 2001, rev. April 2, 2002.

City of Scottsdale. "City wide 69kV & 12kV Power Line Underground Study." May 23, 1997.

Types of Power Lines.

Improvement Districts.

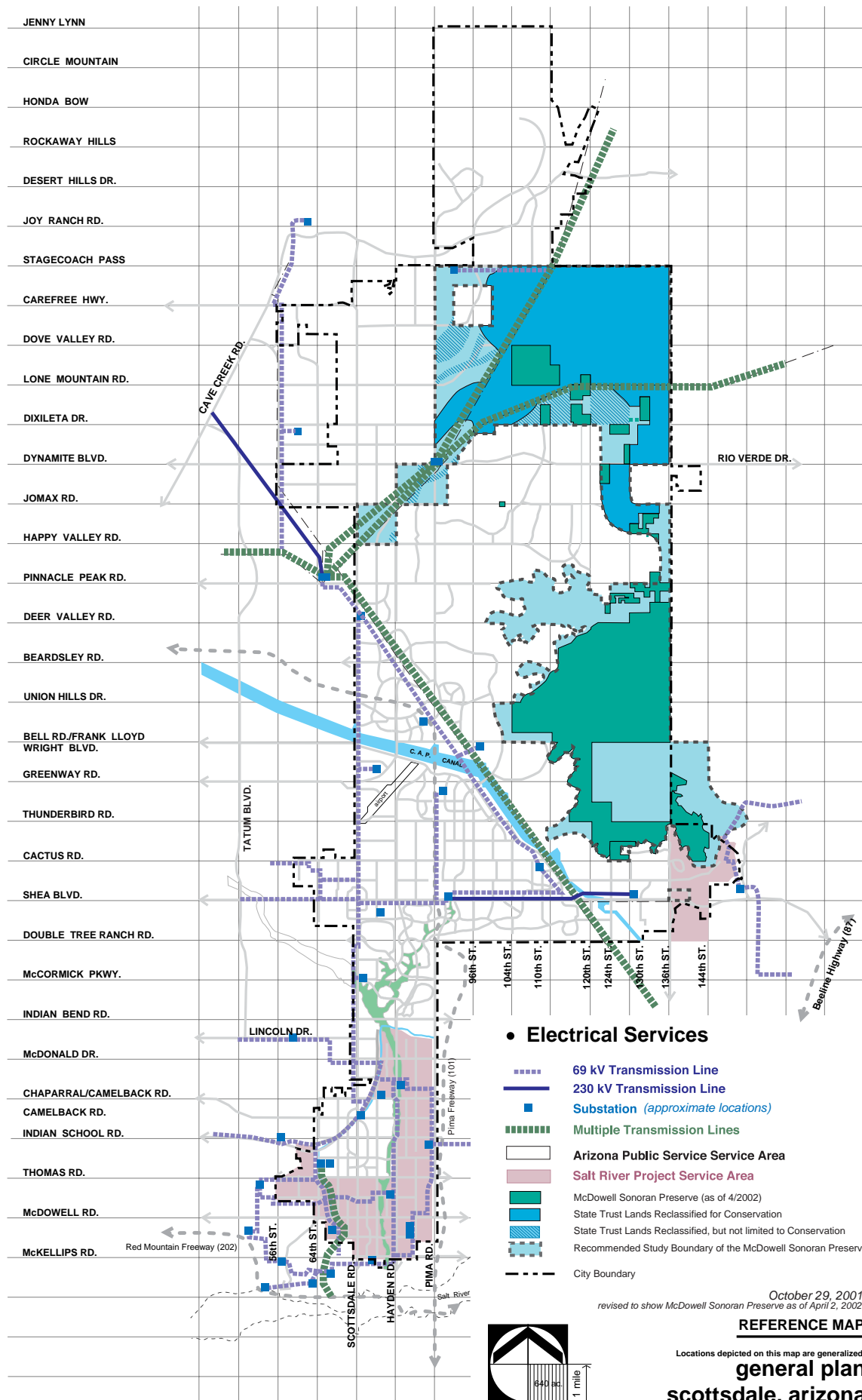
Alley Abandonment Issues.

Arizona Public Service (APS).

Salt River Project (SRP).

Town of Paradise Valley.

General Plan, City of Scottsdale.



CITY WIDE  
69kV & 12kV POWER LINE UNDERGROUNDING  
STUDY

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City of Scottsdale

23 May, 1997

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## **HISTORICAL BACKGROUND:**

There have been several instances over the past 20 years where Arizona Public Service (APS) has identified the need for new, above ground, 69 kV transmission lines to be installed in Scottsdale. Most recently the utility company identified a new transmission line to be installed from the 230kV power line corridor in north Scottsdale to one of their substations located at 68<sup>th</sup> Street and Dixileta Drive. This proposed installation prompted the neighborhood to request the formation of an improvement district to underground the new transmission line. The formation of the district was successful and construction of the undergrounding of the power lines is proceeding.

Based on the fact that this particular district was successful and received a large amount of public support, the City Council directed staff to research the possibilities of proceeding with a city wide undergrounding program for existing power lines. This study is the first step in understanding the magnitude of undergrounding all the 12kV and 69kV power lines within the city boundaries.

This report will provide a preliminary inventory of all 69kV & 12kV power lines within the city limits, analyze the financial and physical impacts of undergrounding those lines, and address a possible financing mechanism for this endeavor.

## **CITY WIDE INVENTORY:**

In conjunction with APS and Salt River Project (SRP) the City first inventoried two one (1) square mile areas within the city limits. These areas, one located in south Scottsdale and the other located in north Scottsdale, were analyzed for 12kV overhead power lines based on quarter section maps supplied by the utility companies. The next step was to determine, through field investigation, which areas within the city limits had similar above ground power line configurations as these two study areas (See Attached Map). Once the entire city was analyzed, it was determined that the City should be divided into north and south areas based on developed infrastructure and costs associated with undergrounding power lines in those particular areas. The dividing line was placed at the Central Arizona Project Canal.

Finally, with the information supplied by the utility companies an inventory of all of the overhead 69kV power lines within the city that were not in existing 230k V power line corridors was completed (See Attached Map). Once again, it was found that due to developed infrastructure, a different per mile cost had to be applied for the north and south areas of the city. It must be understood that there still may be areas within the city that are not identified on the attached map, but should the study proceed to the next level of investigation, a more in-depth inventory will be undertaken.

## **COST ANALYSIS:**

In the two one (1) square mile areas that were investigated, an accurate overhead power line inventory was supplied by the providing utility company. Also supplied by the utility companies were approximate construction costs associated with the undergrounding of 12kV power lines. In both areas it was noted that attached to the overhead power poles were US West phone lines, existing street lights and cable television lines which would have to be placed underground or in the case of existing street lights new street light poles erected in conjunction with the undergrounding of the power lines. Since some of these utilities did not exist, or were less developed in the different study areas, a cost estimate was developed for the north square mile area versus the south square mile area in the city.

**The estimated average cost per square mile for those areas south of the CAP is \$7,650,500 and for those areas north of the CAP is \$3,013,956 (See Page 7).**

In order to develop a city wide cost estimate, the two one (1) square mile cost estimates were applied to those areas identified within the city that have existing overhead 12kV power lines. A cost estimate for the existing 69 kV lines was also developed.

It was determined that for those 69kV power lines south of CAP Canal an estimated cost of \$3,000,000 per lineal mile would apply, and for those lines north of the CAP Canal an estimated \$1,500,000 per lineal mile would be applied. The reason for the differing 69kV undergrounding cost is based on the differing infrastructure development north of the CAP versus south of the CAP.

With this information the following City Wide Cost Estimate was generated.

### **Cost Estimate for City Wide 69kV & 12kV Undergrounding**

Area: All land within the City of Scottsdale city limits.

Estimated Costs:

12kV North Area, 6 square miles @ \$3,013,956 per sq. mile	\$ 18,083,736
12kV South Area, 16.5 square miles @ \$7,650,500 per sq. mile	126,225,000
69kV North Area, 11.5 lineal miles @ \$1,500,000 per mile	17,250,000
69kV South Area, 32.5 lineal miles @ \$3,000,000 per mile	<u>97,500,000</u>
Total	\$259,058,736



### **Property Owner Impacts:**

It must be realized that in addition to the direct cost of undergrounding, the power lines and other utilities, there will be a cost to the property owners for the conversion of their overhead feed fuse box to an underground feed type. Depending on the age of the fuse box this could cost an estimated \$500 to \$1,000 per unit. In addition, the property owner will incur the cost of trenching and re-landscaping on their private property in order to tie into the underground system.

Another obstacle that will be faced with the undergrounding of the power lines in the older parts of the city will be the acquisition of side yard easements. These easements will be necessary to underground service lines from the underground power lines in the alleys to the street side transformers. It will also be necessary to obtain from property owners front yard easements associated with the ground-based transformers, which used to be attached to the power poles in the alleys.

### **FINANCING MECHANISMS:**

There are two possible ways to create a funding mechanism for the undergrounding of 12kV and 69kV power lines throughout the city.

The first method of finance would be for the city to establish a fund utilizing general fund monies that would generate 1 to 2 million dollars a year. At a funding rate of 2 million dollars it would take the city an estimated 130 years to underground all the existing overhead power lines identified in this report.

The second financing method would be to establish a 1.5 to 2 percent transaction privilege tax to be collected as a surcharge on electric utility bills for both APS and SRP customers. In the case of APS, this would represent an additional surcharge, since through our current franchise agreement the city collects a 2 percent surcharge based on a 1.4 percent amount charged to the utility users. This would mean that if an additional 2 percent surcharge were approved, the city would collect from APS customers an additional 1.6 percent. If approved, the additional surcharge would represent an estimated \$1.5 million a year in funds for the citywide power line undergrounding program.

In addition, the city would have to enter into a transaction privilege tax agreement with SRP, obligating their customers to pay the same surcharge amount as APS customers. This agreement could be very difficult to establish since the city does not currently have a franchise agreement with this utility and that they are not governed by the Arizona Corporation Commission (ACC). If an agreement was reached, it is estimated that the SRP surcharge could generate an additional \$1.5 million a year, bringing the total funds generated by APS and SRP customers to an estimated \$3 million per year. These estimated amounts would only increase over time as more utility customers came on line throughout the city.

To establish the surcharges to be collected by the utility companies, the city would have to bring this matter to the citizens of Scottsdale for approval. This would be accomplished through a general ballot item to be presented at a general election with a majority of the voters in favor in order to implement the surcharge. If the voters approved the surcharge it would take the city an estimated 87 years to underground all the existing overhead power lines identified in this report.

#### RECOMMENDATION, POLICY ALTERNATIVE AND FINANCING ALTERNATIVE:

Recommendation: It is recommended that the City not participate towards the cost of undergrounding utilities due to the enormous cost associated with the effort and the perceived inequity by those citizens not benefiting from the project.

Policy Alternative: The City of Scottsdale could contribute up to 10% or \$500,000 whichever is less toward any improvement district. The City could budget \$500,000 per year toward utility undergrounding improvement districts and this funding could accumulate up to \$2 million.

Financing Alternative: Establishment of a 2% surcharge on all electric utility bills. It is estimated that this surcharge could generate an estimated 3 million dollars a year. The surcharge would have to be approved through general election.

## **1 Square Mile Cost Estimates for 12kV Undergrounding**

### **South of Central Arizona Project Canal**

Area: McDowell Road to Thomas Road, Hayden Road to Scottsdale Road

Estimated Costs:

12kV Overhead Lines 56,675 lineal feet @ \$68.00 per foot =	\$3,400,000
CATV Overhead Lines 56,675 lineal feet @ \$20.00 per foot=	1,133,500
US West Overhead Lines 56,675 lineal feet @ \$20.00 per foot=	1,133,500
Street crossing & driveway replacement @ Lump Sum Est.=	1,000,000
Street light conversion:	
Major Arterioles 88 poles @ \$1,000 each =	88,000
Interior Streets 250 poles @ \$800.00 each =	<u>200,000</u>
Sub Total	\$6,955,000
Contingency of 10%	<u>695,500</u>
Total	\$7,650,500

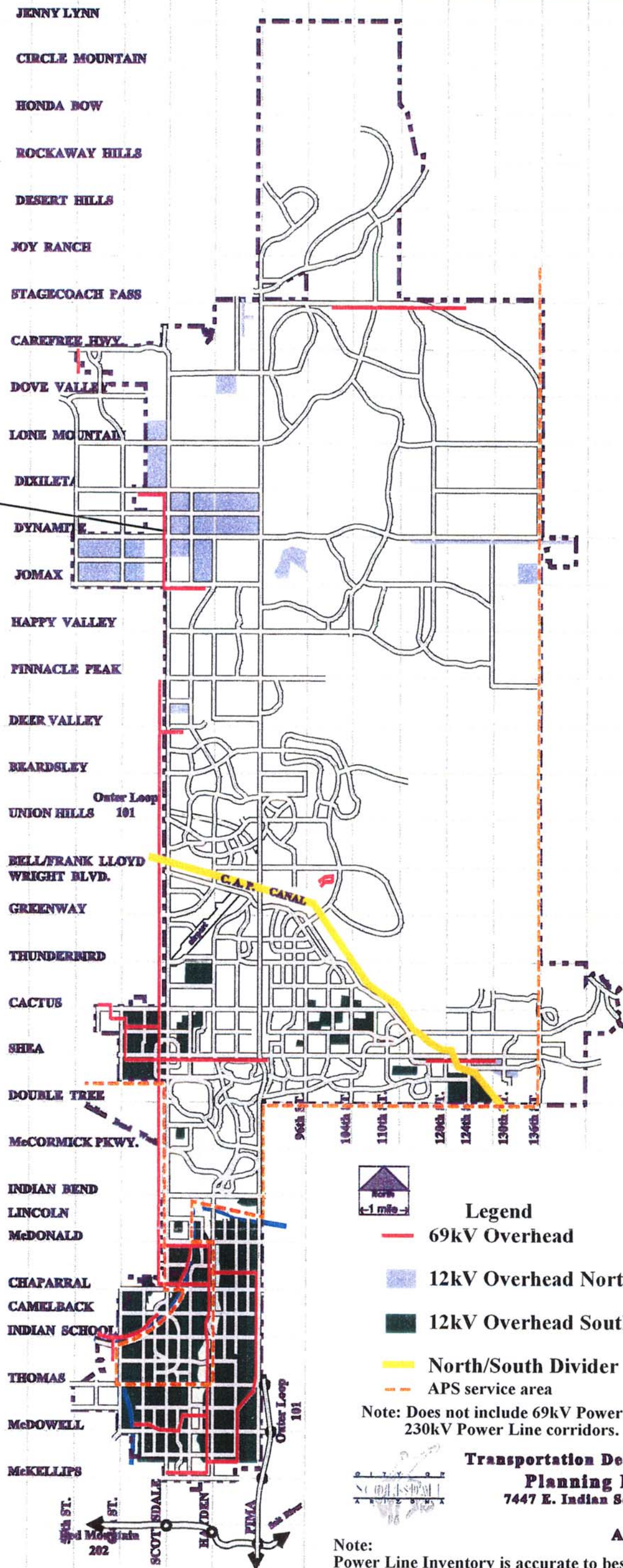
### **North of Central Arizona Project Canal**

Area: Dixileta Road to Dynamite Blvd., Hayden Road to Scottsdale Road

Estimated Costs:

12kV Overhead Lines 25,370 lineal feet @ \$68.00 per foot =	\$1,725,160
CATV Overhead Lines 25,370 lineal feet @ \$20.00 per foot =	507,400
US West Overhead Lines 25,370 lineal feet @ \$20.00 per foot =	<u>507,400</u>
Sub Total	\$2,739,960
Contingency of 10% =	<u>273,996</u>
Total	\$3,013,956

Note:  
Proposed Lines to be  
under ground in the  
summer of 1997.



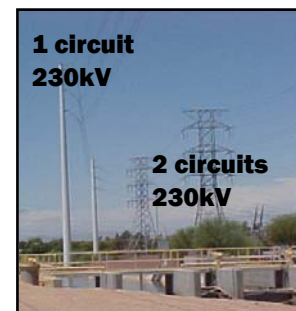
## Types of Power Lines

**12 kilovolt (kV) distribution lines.** This photograph at right shows a 12kV distribution line. This pole also has a street light located on the same pole. The location is an alley south of Osborn in the Holiday Park area.



**69kV transmission lines.** This photograph at left shows a single-circuit 69kV transmission line located along 64<sup>th</sup> St. south of Thomas. Double-circuit poles have a second string of lines.

**230kV transmission lines.** The lower photograph at right shows three circuits of 230kV transmission lines along the multi-use path located on the Crosscut Canal banks north of Thomas. The transmission lines to the right are going to the SRP power substation north of Thomas along 64<sup>th</sup> Street.





## Improvement Districts

Distribution line and some transmission line undergrounding has traditionally occurred through improvement districts. The State of Arizona has a statute that provides a mechanism for neighborhoods to underground overhead distribution lines (Title 40, Article 6.1 - "Conversion of Overhead Electric and Communication Facilities"). The statute requires public utilities to provide a cost estimate for converting overhead lines in residential areas (12kV). To initiate the cost estimate, a majority (60%) of homeowners in the area must present a petition to the utility following the guidelines found in the statute. Neighbors define the conversion service area boundaries.

The utility will then prepare an estimate based on the full cost associated with the conversion process. (10% engineering study). The utility then provides a summary of the estimate of the costs to be assessed against each property. Within 60 days, the City Council hears the petition to establish the service area. Anyone opposed files an objection. If the service area is established and the cost is approved by the homeowners, construction proceeds. If the service area is approved, ALL homeowners are required to go underground and will be required to pay for the conversion; they will have their overhead service disconnected, even if they were not part of the original group of petitioners.

In addition, there is a state statute governing the use of improvement districts for undergrounding transmission lines that are in public rights-of-way and easements. This statute outlines procedures for creating an improvement district for undergrounding transmission lines, such as 69kV lines adjacent to roadways or within dedicated public easements. This process requires a public hearing following receipt of a petition signed by a majority of property owners, and also requires a simplified ballot card election in the area affected by the proposed district. These regulations are stricter than the standard improvement district guidelines. This statute doesn't apply if the city chooses to bear the full costs of undergrounding transmission lines, instead of forming an improvement district to share costs with benefiting property owners.

City of Scottsdale Financial Policy #23 provides for some support of local improvement district efforts. These programs are unfunded in the current Capital Improvement Plan.

*Pay-as-you-go contributions up to 10%, or \$500,000, whichever is less, may be authorized by City Council towards any single utility undergrounding improvement district. Any unused annual budget authorization may carry forward to a maximum \$2 million appropriation for utility undergrounding capital projects that benefit the community as a whole.*

## **Alley Abandonment Issues.**

### **Questions to ask when considering an alley closure.**

1. It is an alley (City property) or a public utility easement (typically private property)?
2. What utilities are currently in the alley (Possibilities: water, sewer, electricity, phone, cable, irrigation)?
3. Does Solid Waste provide trash pick-up in the alley? Does Solid Waste provide trash pick-up curbside in the vicinity?
4. Is emergency service access required through the alley (fire, police)?
5. Do any residents require access through the alley to their properties (RV's, boats, garages, etc.)?
6. How do the affected property owners plan to secure the property once their alley is closed (leave open, gates, fencing, move walls, etc.)?
7. What is the driving force behind the alley closure request (safety, property values, etc.)?
8. Is the alley an integral part of the character of the neighborhood? Has a precedent been set by other alley closures in the vicinity?

All properties affected by the proposed closure must be contacted, and all should be supportive of the closure. A neighborhood meeting is encouraged to inform affected property owners about the proposal. If after meeting to discuss the proposal, the neighborhood would like to go forward, a pre-application meeting can be set-up by calling the Planning and Development Services Department at (480) 312-7000. If your neighborhood wishes to proceed with the closure request, it will go through a public process including hearings and decisions by the Planning Commission and the City Council.

### **Information on Alley Closure Costs and Process.**

- The current cost to do a abandonment is \$1,338. That does not include any miscellaneous costs you may incur getting documents, records, maps, plans, etc.
- A letter of response from each of the 5 affected utility providers stating whether they could support closing off the alley is required (water/sewer, electric, gas, phone, TV). If the proposal is to move walls back, then that should be stated upfront to the utilities when asking if the alley can be abandoned. Sometimes due to placement of the lines and poles, it's possible that a wall might fall right on the pole and therefore a wall could not be located exactly on the property line.
- Copies of title reports or proof of ownership for all lots abutting the proposed abandoned alley along with letters of support from those owners are needed. It should include the proposal for what will happen to the alley if abandoned (ie, all the properties will move their walls back, the entrances/exits to the alley will be gated off and here's what the gate would look like, etc.).
- If walls are constructed/moved, that requires permits by the city. Please check with the One Stop Shop (on-line or 312-2500) on what those fees would be.
- If the neighborhood wishes to proceed with the closure request, it will go through a public process including hearings and decisions by the Planning Commission and the City Council.

## **Arizona Public Service (APS)**

APS services the portion of the city generally north of the Arizona Canal near Indian Bend Rd, and also the Downtown and resort corridor area. APS overhead lines are primarily in the downtown area, the Cactus Corridor, and between Jomax and Dove Valley.

APS policy is that trenching and conduit is the responsibility of the city. In addition, APS needs assistance from the city in obtaining easements, if sufficient right-of-way does not already exist. If there are other utilities (i.e. telephone, cable, gas) in the trench, then the trench will need to go deeper.

For 12kV lines, the cost formula is the residual value of the existing overhead facility plus the cost for removal minus the salvage value and the cost difference between the new underground lines and a new overhead line. In addition, there are adaption and conversion costs for residents. For 12kV APS can use the existing right-of-way and also allow other utilities.

For 69kV lines, they use the same formula to convert – but they don't allow other utilities in trench. Their policy is that they do not co-locate other utilities in transmission lines (69kV and higher). A 20' wide corridor would need to be available for APS to underground 69kV lines.

They have converted 230kV, similar to those that exist north of Bell from Scottsdale to Pima. However, they won't provide a generic cost estimate per mile. 230kV lines typically already have dedicated easements. They have undergrounded 230kV lines along Rio Salado Parkway in Tempe, from Priest to the east side of Hayden Butte. City of Tempe staff reports that the costs for these projects were:

- a) Sun Devil Stadium to the Railroad Bridge in Tempe Beach Park,  $\frac{3}{4}$  mile, \$7 million, completed in 1998.
- b) From the Railroad Bridge to Priest,  $\frac{1}{2}$  mile, \$6 million, completed in 2003.



## **Salt River Project (SRP)**

SRP provides service primarily in the southern portion of the city, south of the Arizona Canal near Indian Bend Road, with the exception of the downtown area. Almost all of service in this area is provided through overhead lines. SRP also provides service in the city east of 136<sup>th</sup> Street.

SRP's policy is that when overhead lines are not considered acceptable, it is possible to underground new construction or convert existing lines. For new construction, the requesting entity (not SRP) finances the cost differential between overhead and underground lines. For underground conversion of existing overhead lines, the requesting entity (not SRP) finances the entire project cost. SRP allows cities to use existing/available municipal aesthetic funds for projects.

The technology currently used is "extruded cables." The underground lines are insulated with cross-linked polyethylene or XLPE and installed in a six-inch PVC conduit (for example, all 11 SRP 69kV undergrounding projects, and the recent APS 230kV system south of Town Lake). SRP no longer accepts the HPFF High-Pressure Fluid Filled Pipe type cable system using either a dielectric fluid or gas process. This is no longer used due to high maintenance burden and environmental risks (for example, the decades old APS system in downtown Phoenix).

Manholes are also required in order to provide access to the underground equipment for cable splicing. The frequency of manholes is based on maximum cable pulling length and/or the sizes of reels which can be reasonably transported on city streets. Size is typically 10 feet wide by 20 feet in length.

It is important to have sufficient right-of-way corridor width and use restriction to provide for the safe, reliable operation and maintenance of the underground line. Larger lines need dedicated easements and may incur additional land acquisition costs. For example,

- 1) Single circuit requirements are 16 feet – primarily based on vehicle access requirements.
- 2) Double circuit requirements are 26 feet – primarily based on a minimum of 12 feet separation between center line of each circuit.

## **Salt River Project (SRP)**

### ***Approximate Costs***

<b>Installation Type</b>	<b>\$M / mile</b>
69 kV single circuit, med. Capacity	1.9
69 kV single circuit, high capacity	2.6
69 kV double circuit, high capacity	4.6
230 kV single circuit, med. Capacity	2.7
230 kV single circuit, high capacity	3.7
230 kV double circuit, high capacity	6.5

Note: costs are highly variable depending on local conditions. Factors include difficult trenching, bends in the route, asphalt cutting and repaving, interference from other underground facilities, or traffic control requirements resulting in fewer working hours per day. (Source: SRP)

## **Town of Paradise Valley**

The town has adopted a policy to underground all overhead utility lines in the city, and has been working on accomplishing this since 1987. This has received considerable media coverage, and generates citizen contacts requesting this type of approach in Scottsdale. Their goal is to have all APS and SRP (69kV & 12kV), Qwest, and Cox overhead lines undergrounded by 2010-2012.

They completed their undergrounding of APS 69kV single-circuit lines on Lincoln Drive at a cost of \$850 thousand - \$1 million per mile. They have also contributed to undergrounding 69kV lines along Scottsdale Road. Now there are no more 69kV overhead lines in Paradise Valley.

In addition, they have a program that assists residents in placing right-of-way utility lines underground. There are two factors which have contributed to the success of this distribution line (12kV) undergrounding program:

- 1) In 1994, the town reached an agreement with APS for on-going undergrounding of 12kV distribution lines after the town adopted an ordinance requiring undergrounding (APS sued the town and lost). The portion of the town (80%) served by APS was broken into underground electric line conversion districts. APS pays for 45% of the cost of undergrounding and the town pays 55%. There are also undergrounding agreements with Cox and Qwest. The town pays the trenching cost, and the utility pays for the rest.
- 2) The town received approval from the Corporation Commission for a voluntary improvement district process. Instead of a petition, the town signs up residents within a conversion district interested in undergrounding. Hillside property owners are asked to donate \$4,500, and non-hillside property owners \$1,500. The participation threshold is 50% of non-hillside and 75% of hillside owners. Once the district is approved, the residents in the district need to come up collectively with the money – conceivably, some residents could pay more and others pay less – as long as they come up with the minimum threshold. For example, if 100% of owners in a non-hillside neighborhood agreed to pay \$750, they would raise the same amount of funds as the minimum standard (50% at \$1,500). In addition, at least 75% of all property owners must agree to have their private overhead lines and poles removed and placed underground.

## **General Plan, City of Scottsdale**

Power line undergrounding is addressed in the city's General Plan under the Public Services and Facilities Element. Several statements in the General Plan relate to the issue of undergrounding.

- Encourage the provision of power and communication systems that match the character of Scottsdale and provide reliable, efficient service for Scottsdale citizens, visitors, and businesses.
- Minimize the visual impact of existing and proposed utility facilities.
- Underground all new electrical distribution lines carrying less than 69kV.
- Encourage the undergrounding of all existing 69kV and lower voltage electrical lines. One method for financing the undergrounding is through special improvement districts.